

PATENT APPLICATION

EQUIPMENT SUPPORT FOR USE WITH OFFICE CUBICLES

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CROSS-REFERENCES TO RELATED APPLICATIONS

[01] NOT APPLICABLE

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STATEMENT AS TO RIGHTS TO INVENTIONS MADE UNDER FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[02] NOT APPLICABLE

10 REFERENCE TO A "SEQUENCE LISTING," A TABLE, OR A COMPUTER
PROGRAM LISTING APPENDIX SUBMITTED ON A COMPACT DISK.

[03] NOT APPLICABLE

BACKGROUND OF THE INVENTION

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1. Field of the Invention

[04] The present invention relates generally to office furniture and more specifically to supports for office equipment to be used within cubicles.

20 2. Description of the Prior Art

[05] Because real estate prices have risen dramatically in recent years, the cost per unit area of commercial space has increased commensurately. Therefore, the efficient use of office space has become an important component in many companies' efforts to control costs.

[06] One way to achieve such efficiency is to move employees into modular offices known as cubicles, which typically consist of movable walls without ceilings, doors or windows. The walls are typically formed of a metal frame over which fabric or a similar covering has been stretched. The capacity of a cubicle wall to support the weight of objects mounted on the wall is predetermined according to the type and thickness of the covering, how it is stretched on the frame and other factors.

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30 [07] Each wall of a cubicle may generally be moved as a single piece and may be fitted together with walls of adjoining cubicles. Therefore, the walls are easily moved and cubicles may be quickly reconfigured as employees move, office layouts are modified, etc.

[08] Because cubicles are normally quite small, the furniture and office equipment used within each cubicle must be selected and organized to occupy as little of the floor space, as well as any desktops or table tops, as possible. However, in years past, word processing equipment was bulky and was often sold as a single unit which included a keyboard, monitor, computer and printer. Components of modern computer equipment are now modular, allowing for a printer, monitor, keyboard and computer to be arranged for the convenience of the user. Moreover, computer equipment used in an office is typically networked, allowing certain shared components, such as printers, to be located at a distance from any given work station if so desired.

[09] Many computer peripherals have become considerably smaller in recent years. For example, monitors which include a cathode ray tube ("CRT") are still commonly used, but such monitors are gradually being replaced by flat-screen monitors. This advancement is particularly advantageous for cubicles and other work spaces with very limited space, because monitors with CRTs occupy significantly more space. Moreover, the space normally occupied by CRT monitors-the desktop-is a particularly valuable component of any office work area, so freeing more desktop space would be of great benefit. Moving printers, books and other items from the desk top would also allow for more efficient use of cubicle space. Coverings of a cubicle wall have a capacity to support only relatively light objects, such as paper, photographs, etc. Such coverings do not have the capacity to support heavy objects such as books or a computer monitor. Typically there is no easy access for connecting/attaching a mechanical arm as the spaces and work surfaces are modular.

SUMMARY OF THE INVENTION

[10] The present invention provides a variety of devices and methods for positioning various objects, including but not limited to computer monitors, adjacent to or against the walls of a cubicle or similar structure.

[11] According to some embodiments of the present invention, a support apparatus for suspending an object from a cubicle wall includes a bracket for engaging a top surface edge of the cubicle wall, a member, suspended from the bracket, for extending generally parallel to the cubicle wall and at least one adapter, coupled to the member, for mating to the object.

[12] In some such embodiments, the bracket is adjustable to accommodate varying widths for the cubicle wall. The member may include a track and wherein the adapter is slidably coupled to the track to permit height adjustment relative to the top surface edge of the cubicle wall. The member may include a set of height-adjusting structures distributed along a length

of the member and wherein the adapter is engageable with any structure of the set of structures to permit height adjustment relative to the top surface edge of the cubicle wall.

[13] Some such members are telescoping. In some embodiments, the track is extendable. The support may include a mount for a computer peripheral device such as a flat-panel computer monitor. The bracket may be slidably coupled with the member. The support apparatus may include a hinge for rotating the bracket. The member may include an outer track and an inner track telescopable with the outer track.

[14] The adapter may be slidably coupled to the track to permit height adjustment relative to the top surface edge of the cubicle wall. The adapter may be slidably coupled to the track to permit height adjustment relative to the top surface edge of the cubicle wall. The adapter may have a first orientation in which it slidably engages the inner track and a second orientation different from the first orientation in which the adapter slidably engages the outer track. In some such embodiments, the first orientation is orthogonal to the second orientation.

[15] According to other embodiments of the present invention, an apparatus is provided which includes: a bracket configured to engage a top portion of a cubicle wall; a track configured to be suspended from the bracket along the side of the cubicle wall; and a mount for supporting a computer peripheral device, the mount configured to be attached to the track. The track may be configured to attach the mount in a plurality of positions. The track may be extendable.

[16] According to still other embodiments of the present invention, an apparatus is provided which includes: adjustably engaging with a top of a cubicle wall, the cubicle wall including a wall having a predetermined support capacity; means for supporting an object having a weight in excess of the predetermined support capacity; and means for positioning the supporting means adjacent to the cubicle wall, the positioning means comprising means for coupling with the engaging means.

[17] Some such embodiments include means for rotating the engaging means. The means for rotating the engaging means may be a hinge which allows the engaging means to be folded into various positions. The means for rotating the engaging means may also be a configuration which allows the engaging means to be rotated around the axis of a fastening device such as a screw. The engaging means may include means for accommodating a plurality of cubicle wall shapes.

[18] According to yet other embodiments of the present invention, a method is provided which includes the steps of: suspending a track from a top portion of a cubicle wall,

positioning the track along a side of the cubicle wall and attaching a support to a desired position on the track.

[19] According to other embodiments of the present invention, a method is provided which includes the steps of suspending an extendable track from a top portion of a cubicle wall, positioning the extendable track along a side of the cubicle wall, attaching a mount for a computer monitor to the track and extending the track, thereby moving the mount to a desired location.

[20] Other features and advantages of the present invention will be understood upon reading and understanding the description of the preferred exemplary embodiments, found hereinbelow, in conjunction with reference to the drawings, in which like numerals represent like elements.

BRIEF DESCRIPTION OF THE DRAWINGS

[21] Figure 1 is a side view of one embodiment of a cubicle wall support according to the present invention;

[22] Figure 2 is a front view of the top portion of the cubicle wall support depicted in Figure 1;

[23] Figure 3 is a side view of a second embodiment of a cubicle wall support according to the present invention;

[24] Figure 4 is a top view of the cubicle wall support depicted in Figure 3;

[25] Figure 5 is a top view of an alternative embodiment of a cubicle wall support according to the present invention;

[26] Figure 6 is a top view of an alternative embodiment of a cubicle wall support according to the present invention;

[27] Figure 7 is an enlarged view of the mount depicted in Figure 1;

[28] Figure 8 is a front view of the mount depicted in Figure 7;

[29] Figure 9 is a side view of an alternative embodiment of a cubicle wall support according to the present invention;

[30] Figure 10 is a top view of the cubicle wall support depicted in Figure 9; and

[31] Figure 11 is a side view of yet another embodiment of a cubicle wall support according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[32] Figure 1 illustrates one embodiment of cubicle wall support 100. Cubicle wall support 100 may be made of any sturdy material, such as metal, plastic, wood, etc. In one preferred embodiment, cubicle wall support 100 is made of steel.

5 [33] Support 100 includes a track 105, a first section 110, a second section 115, a portion 120 defining a set of holes as may be seen in Figure 1. Other embodiments of track 105 are composed of different numbers of sections, as will be discussed below. For example, some embodiments of track 105 are formed of a single member. In the embodiment depicted in Figure 1, section 110 is slightly wider than section 115, allowing section 115 to slide in and
10 out of section 110 for easy adjustment of the overall length of track 105.

[34] In this embodiment, sections 110 and 115 are both configured with holes 120, which allow sections 110 and 115 to be mated with one another by lining up one of holes 120 on section 110 with another of holes 120 on section 115, then inserting screw 145 or a comparable fastening device. In other embodiments of track 105, sections 110 and 115 are
15 secured using a variety of different mechanisms, including clamps, pegs, latches, wing nuts, sliding bolts and other comparable mechanisms known to those of skill in the art.

[35] Sections 110 and 115 may be formed in a variety of shapes and sizes. In some embodiments, sections 110 and 115 are each between 1 and 2 feet in length. In one such embodiment, section 110 has a length of approximately 40 cm and section 115 has a length of
20 approximately 50 cm. Other dimensions of sections 110 and 115 will be discussed with reference to other figures, wherein other features of cubicle wall support 100 are more easily distinguished.

[36] In the embodiment illustrated in Figure 1, track 105 is suspended from cubicle wall 127 by bracket 125. Bracket 125 may be connected to track 105 in various ways. In the
25 embodiment illustrated in Figure 1, bracket 125 is configured to slide within sleeves 130 of track 105, as necessary to accommodate the thickness of cubicle wall 127 or a similar object, and is coupled with track 105 by one or more screws 135. However, bracket 125 may be coupled with track 105 using pins, bolts, belts or any suitable attachment. In some embodiments of cubicle wall support 100, bracket 125 and track 105 are formed of a single
30 piece of material.

[37] Mount 140 supports flat screen 150 on track 105. Other embodiments of mount 140 are configured to support other items, such as other computer peripheral devices, books, lights, etc. However, in the embodiment of mount 140 depicted in Figure 1, mount 140 is

specifically designed to couple with a flat-screen device such as a flat-screen computer monitor or a flat-screen television.

[38] In the embodiment illustrated in Figure 1, mount 140 is configured to slide within sections 110 and 115 of track 105 and is held in place by one or more screws 145. However, mount 140 may be coupled with track 105 using pins, bolts, latches or any suitable attachment.

[39] Figure 2 illustrates a top portion of cubicle wall support 100, as viewed from direction A indicated on Figure 1. Bracket 125 is configured to slide within sleeves 130 of section 115 of track 105. Bracket 125 is held in place by screws 135. Sides 210 of section 115 are connected by back 205.

[40] In this embodiment, bracket 125 is formed with a width of approximately W_1 , to allow bracket 125 to slide within sleeves 130. In some multiple-section embodiments of track 105, an adjoining section is made with an inside width of approximately W_1 or an outside width of approximately W_2 , so that the adjoining section will readily couple with section 115.

[41] Sides 210, back 205, bracket 125 and sleeves 130 may be formed in any convenient dimensions and need not be the same thickness. In one embodiment, sides 210, sleeves 130 and back 205 are all approximately 2 mm thick and bracket 125 is approximately 3 mm thick. In one embodiment, section 115 has an outside width W_1 of approximately 105 mm and an inside width W_2 of approximately 100 mm.

[42] In some embodiments of cubicle wall support 100, holes 215 are formed in back 205. The purpose of holes 215 will be discussed below with reference to Figure 11.

[43] Figure 3 depicts an embodiment of cubicle wall support 100 in which sleeves 130 are disposed above the back of track 105. As in the previously-described embodiments, bracket 125 is configured to slide between sleeves 130 and to be fixed in place by a fastener. This embodiment of bracket 125 is formed in a single piece having segments 325 and 330. Segment 325 has length L_1 and segment 330 has length L_2 . L_1 and L_2 may be any convenient dimensions, but L_1 should roughly approximate the width of a surface upon which cubicle wall support 100 will be mounted. In one embodiment, L_1 is in a range of 9.0-13.0 cm, and preferably is approximately 11.0 cm, and L_2 is in a range of 10.0-14.0 cm, and preferably is approximately 12.0 cm.

[44] In the embodiment illustrated in Figure 3, fastener 305 may be tightened by rotating lever 310 around the axis defined by threaded portion 320. However, any fastener known to those of skill in the art may be used instead of fastener 305.

[45] Figure 4 illustrates a top view of an embodiment of cubicle wall support 100 similar to that depicted in Figure 3, except that screws 135 are used instead of fastener 305. Bracket 125 includes slots 405, which allow bracket 125 to slide between sleeves 130 when screws 135 are not tightened. This movement allows bracket 125 to accommodate a variety of widths of cubical wall 127 or widths of other objects upon which cubicle wall support 100 is mounted.

[46] Figure 4 indicates how sides 210 project forward from back 205 in this embodiment of track 105. Such embodiments provide a space bounded by sides 210 and back 205 within which mount 140 or another mount, adapter or similar device may be secured.

[47] Figure 5 depicts an alternative embodiment of cubicle wall support 100, in which at least a portion of cubicle wall support 100 may be folded. In this embodiment, both track 105 and bracket 125 include hinges 505, which allow adjacent sections of track 105 and bracket 125 to rotate with respect to one another. Knobs 510, when tightened, prevent rotation around the axes of hinges 505. Accordingly, adjacent sections of track 105 and bracket 125 may be rotated into a desired position and then locked into place. This feature is particularly convenient when used to configure cubicle wall support 100 into a relatively flat-configuration for transportation or storage.

[48] Figure 5 also illustrates the use of wing nuts 515 instead of screws 135 to secure bracket 125 with respect to track 105. Wing nuts 515 and knobs 505 are both adjustable by a user without the need for using tools. Therefore, wing nuts 515 and knobs 505 allow a user to adjust cubicle wall support 100 easily and conveniently.

[49] Figure 6 is a top view of an embodiment of cubicle wall support 100 with multiple brackets 125. In the embodiment illustrated in Figure 6, each of brackets 125 slides along sleeve 130 when being adjusted. Each of brackets 125 may be adjusted independently of other brackets 125. This independent adjustment is advantageous for accommodating lateral changes in thickness of the surface upon which cubicle wall support 100 is mounted.

[50] However, some such embodiments of cubicle wall support 100 do not include sleeves 130. Sleeveless embodiments allow more freedom of movement for brackets 125. For example, the lack of sleeves 130 allows brackets 125 to be rotated in the plane of Figure 6 and around the axes of screws 135. This rotation is particularly advantageous for accommodating lateral changes the angle of the surface upon which cubicle wall support 100 is mounted. If cubicle wall support 100 is mounted in or near a corner of a cubicle, brackets 125 may be rotated to allow cubicle wall support 100 to be mounted at a convenient angle

relative to the adjacent walls. Similarly, brackets 125 may be rotated to accommodate a curving cubicle wall.

[51] Figure 7 is a side view of one embodiment of mount 140 which is adapted to support flat-screen monitors. Base 705 is configured to be disposed within track 105. In this embodiment of mount 140, hole 710 is formed such that hole 710 may line up with any of holes 120. Then, a screw or similar fastener may be slid through holes 710 and 120 allowing mount 140 to be disposed in a variety of predetermined positions. Other embodiments of mount 140 are configured to be attached to track 105 in other ways, such as by clamping, which do not require mount 140 to be secured in a predetermined position on track 105.

[52] Arm 715 connects rotating portion 720 to base 705. Rotating portion allows attachment member 725, upon which a flat-screen monitor may be mounted, to be rotated around the axis of rotating portion 720 to any convenient angle. Some such embodiments of mount 140 have a plurality of rotating portions 720, allowing attachment member 725 to be rotated around other axes. One such embodiment includes a second rotating portion 720 which is configured to allow attachment member 725 to rotate in a plane perpendicular to the plane of Figure 7.

[53] Figure 8 is a front view of mount 140. In the embodiment illustrated in Figure 8, base 705 has sides 805 and 810, having widths W_3 and W_4 , respectively. In some embodiments, of mount 140, such as the one depicted in Figure 8, widths W_3 and W_4 are different from one another. In one such embodiment, width W_3 is approximately 100 mm and width W_4 is approximately 105 mm.

[54] Mounts 140 having sides 805 and 810 with different widths W_3 and W_4 may advantageously be used with tracks 105 having multiple sections. For example, section 110 may have width W_1 which is approximately equal to W_3 , allowing sides 805 of mount 140 to fit securely within sides 210 of section 110. Similarly, section 115 may have width W_2 which is approximately equal to W_4 , allowing sides 810 of mount 140 to fit securely within sides 210 of section 115.

[55] In the embodiment illustrated in Figure 8, attachment member 725 includes central portion 830 and side portions 825. Holes 815 are spaced to accommodate one standard size of flat-panel monitor and holes 820 are spaced to accommodate a second standard size of flat-panel monitor.

[56] Figure 9 depicts an embodiment of cubicle wall support 100 with a modified track 105 and bracket 125. Here, track 105 has a single section including slots 910 instead of holes 120. Mount 140 is positioned on track 105 by positioning base 705 of mount 140 within

track 105 and sliding attachment device 920 into one of slots 910. In this embodiment, attachment device 920 is similar to a conventional quick-release device used for mounting a wheel of a bicycle. When attachment device 920 is tightened, force is applied to sides 210 of track 105, thereby securing mount 140.

5 [57] Other embodiments of cubicle wall support 100 which include a slotted track 105 include variations of attachment device 920. In some such embodiments, mount 140 is secured without the need for tightening attachment device 920. In one such embodiment, attachment device 920 includes a rod with end portions separated by a width W_1 , such that attachment device 920 fits snugly within slot 910 without tightening.

10 [58] Figure 10 is a top view of the embodiment of cubicle wall support 100 depicted in Figure 9. In this embodiment, sleeves 130 are part of bracket 125. Top portion 1010 is formed with grooves 1020, allowing top portion 1010 to slide within sleeves 130 and around screws 135.

[59] Figure 11 illustrates an embodiment of cubicle wall support 100 which need not be
15 suspended from the top of a cubicle wall. Instead, this embodiment of cubicle wall support 100 extends to the level of floor 105 and is supported by floor 105. Optional brace 1110 provides stability to section 110 of track 105. In this embodiment, the upper portion of track 105 (here, section 115) is stabilized by bolt 1115. Bolt 1115 passes through holes 215 in track 105 (seen in Figure 2), through cubicle wall 1127 and into plate 1120. In other such
20 embodiments, the upper portion of track 105 may be supported, or at least stabilized, by bracket 125 which engages with the top of cubicle wall 127.

[60] The embodiment of cubicle wall support 100 illustrated in Figure 11 includes shelf 1125 instead of mount 140. In this embodiment, shelf 1125 is stabilized by optional brace 1110. Shelf 1125 may be used with many embodiments of cubicle wall support 100, and is
25 not limited to use with embodiments supported in part by a floor. Moreover, mount 140 may be used with embodiments such as that illustrated in Figure 11.

[61] Those skilled in the art will realize that the present invention may be used with other fixtures besides cubicle walls. Additionally, those skilled in the art will understand that multiple mounts or adapters may be used with a track and bracket.

30 [62] Although the present invention has been described with reference to specific exemplary embodiments, it will be appreciated that it is intended to cover all modifications and equivalents within the scope of the appended claims.